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EXAMINER

LAI, ANDREW

ART UNIT

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2416

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/776,460 | <b>Applicant(s)</b><br>KANAGALA ET AL. |  |
|                              | <b>Examiner</b><br>ANDREW LAI        | <b>Art Unit</b><br>2416                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-33 is/are allowed.
- 6) ☒ Claim(s) 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because fig. 6 appears to have missed a label 647. According to page 14 of the Specification, which describes fig. 6, “Egress/ingress traffic stream 647 travels through physical module 682 and finally through egress/ingress links 672” (emphasis added), it appears that a label 647 should be put in the figure to denote the dotted bidirectional data traffic line between the “Pooling Switch 612” and the “Physical Module 682”. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 34 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**Claim 34** recites in its entirety:

*A device for switching traffic comprising: A first pooling switch configured to be connected to a plurality of physical modules, wherein each of the plurality of physical modules is configured not process traffic through a link layer framer, and wherein the plurality of the physical modules each include a link interface; A link layer framer connected to the first pooling switch, wherein the link layer framer receives traffic from or sends traffic to a selected physical module of the plurality of physical modules, and wherein the plurality of physical modules other than the selected physical module provide 1:N protection; A second pooling switch connected to the link layer framer; and A service module connected to the second pooling switch" (emphasis added).*

Applicant's Specification does not appear to have support for the underlined limitations above, in view of their functional/structural relations with the elements in other parts of the claim.

Clearly, in light of the Specification, Claim 34 is related to the embodiment shown in fig. 6 where depicted the *link layer framer "Freedom"* being *connected to the first pooling switch 612*, which in turn is *connected to a plurality of physical modules 680 and 682*, etc. wherein the *physical modules 680 and 682* each has a *link interface* and is *configured to not process traffic though a link layer framer* (as shown in the figure,

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"Physical Modules 680/682" each has a "*link interface*" but does not have a "Freedom" "*link layer framer*" as in modules 630, 691 and 692. It should also be noted that although the figure labels 630, 691 and 693 also as "Physical Modules", they are merely used for functioning as a link layer framer and thus fundamentally different from "Physical Modules 680/682" which provide the actual traffic sending/receiving functionalities to/from destination/source external to the device). With this structure/configuration in mind, the figure clearly shows that the *link layer framer* "Freedom" does not receive traffic from or sends traffic to a *selected physical module* of the plurality of physical modules; rather, it only receives from/sends to the *first pooling switch* "Pooling Switch 612" and it is the "Pooling Switch 612" that is responsible for combining/splitting the traffic from/to the various "Physical Modules 680/682". However, even the "Pooling Switch 612" does not receive/send packets from/to *selected physical module* of the plurality of physical modules; instead, "pooling switch 612 directs the traffic to/from both physical module 682 and physical module 680" (Specification page 14 lines 16-17).

In summary, Applicant has no teaching for the link layer framer to receive/send traffic from/to *selected physical module*, and even the *pooling switch* is not doing it for *selected physical module* but rather for both or all if there are more than two such physical modules.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 34** recites:

*A device for switching traffic comprising: A first pooling switch configured to be connected to a plurality of physical modules, wherein each of the plurality of physical modules is configured not process traffic through a link layer framer, and wherein the plurality of the physical modules each include a link interface; A link layer framer connected to the first pooling switch, wherein the link layer framer receives traffic from or sends traffic to **a selected physical module** of the plurality of physical modules, and wherein the plurality of physical modules other than the selected physical module provide 1:N protection; A second pooling switch connected to the link layer framer; and A service module connected to the second pooling switch" (emphasis added).*

It is unclear how claimed features, especially those underlined, can work together to "provide 1:N protection" if the traffic is received from/sent to **only a [or one] selected physical module** in that once the one selected physical module fails, no other physical module can protect the failure because they did not have any traffic being received from/sent to initially. Said "1:N protection" would only be sensible according to what is disclosed in the Specification, as discussed in section 3 above, because traffic is received from/sent to both or all, if there are more than two, physical modules to begin with; in that case, if one physical module fails, the others still carry the same traffic.

Also, Claim 34 does not specify the range for the value of "N" in "1:N protection", which renders the claim indefinite.

6. Therefore, in view of the above discussions of the 112 issues, and in light of the Specification, Claim 34 is interpreted as:

*A device for switching traffic comprising: A first pooling switch configured to be connected to a plurality of physical modules, wherein each of the plurality of physical modules is configured not process traffic through a link layer framer, and wherein the plurality of the physical modules each include a link interface; A link layer framer connected to the first pooling switch, wherein the link layer framer receives*

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*traffic from or sends traffic to ~~a selected physical module of the plurality of physical modules via said first pooling switch~~, and wherein the plurality of physical modules ~~other than the selected physical module~~ provide 1:N protection; A second pooling switch connected to the link layer framer; and A service module connected to the second pooling switch" (emphasis added).*

Consequently, subsequent Office Action regarding claim 34 will be based on this interpretation. On the other hand, Applicant is required to clarify the issues raised above, or points out where in the Specification claim 34, as currently claimed, is supported in addition to resolving the indefinite issues.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sutoh et al (US 2003/0165115, Sutoh hereinafter) in view of Sha (US 6,868,057) and further in view of Natarajan et al (US 2004/0086003, Natarajan hereinafter).

Sutoh discloses "a hitless switching system includes a sending apparatus and a receiving apparatus" (Abstract lines -2) comprising the following features.

**Regarding claim 34**, *a device for switching traffic* (see "a hitless switching system", Abstract line 1) *comprising:*

*a first pooling switch* (fig. 8 "switch part 810" and "multiplexing part 610") *configured to be connected to a plurality of physical modules* (fig. 8 "sending interface 620/625"), *wherein the plurality of the physical modules each include a link interface*

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(obviously so because items 620 and 625 in fig. 8 by definition is a "sending interface", emphasis added, wherein a *link interface* must exist in order to be "sending" data).

a frame passing module (fig. 8 the top pair "indicator providing part" and "branch part", "FPM" hereinafter, and noting "the distributing part includes:", [0047] line 2 "a part for inserting H4 byte multi-frame into each virtual concatenation signal", [0049], which frame as shown in fig. 8 is passed to said "FPM" and further to "switch part 810") *connected to the first pooling switch* (fig. 8 depicting "FPM" connected to "switch part 810), *wherein the FPM receives traffic from or send traffic to the plurality of physical modules via the first pooling switch* (fig. 8 depict said "FPM" *send traffic to both* "sending interface 620/625" via the "switch part 810"), *and wherein the plurality of physical modules provide 1:N protection* (naturally so, as shown in fig. 8, wherein each "sending interface" receives traffic and in case one of them fails, the other still carries the same traffic that can be sent out and thus *provides 1:N protection* where  $N = 1$ . It should be note also that providing more than two such modules and thus a *1:N protection* with  $N \geq 1$  is merely a design preference, depending on how many folds of protection one desires. In other words, it is obvious and as a matter of fact trivial to one skilled in the art to add more protection modules, should it be desirable, to provide a *1:N* ( $N \geq 1$ ) protection. Such "1:N protection" where ( $N \geq 1$ ) has been an old and well known technique at the time of instant invention. One example can be seen in Stalick, US 5,216,666, which discloses "a 1:N ring-type signal protection apparatus", Title of the patent, wherein fig. 4 shows one typical example of existing art, even prior to Stalick, in which "protection against failure of the transport system network elements or



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interconnecting paths is provided in many situations by 1:N protection switches where  $N \geq 1$ ", col. 9 lines 5-8);

*a second pooling switch* (fig. 8 "distributing part") *connected to the frame passing module* (fig. 8 depicting "distributing part" connected to the "FPM"),

*a service module* (fig. 8 "client interface 660") *connected to the second pooling switch* (fig. 8 depicting "client interface 660" connected to "distributing part").

Regarding the feature of "*a link layer frame module*" connected to the first pooling switch for claim 34, Sutoh suggests such framer in the "distribution part" (refer to fig. 7 and see "the distributing part includes:", [0047] line 2 and "a part for inserting H4 byte multi-frame in to each virtual concatenation signal", [0049]). Sutoh however does not expressly disclose, regarding claim 34, "*a link layer framer*" connected to the first pooling switch and a second pooling switch connected to "*the link layer framer*".

However, using *link layer framer* with *queue* or *buffer* is an old and well-known technique in the field of protection lines/switches. There are numerous such disclosures, of which Sha is one example.

Sha discloses a "automatic protection switch decision engine" (col. 1 lines 1-2) which "decides to assign a service line to be active or in standby mode" (Abstract lines 1-2). Sha's invention comprises:

**Regarding claim 34**, *a link layer framer* (fig. 2, e.g. "framer 111" connected to the first pooling switch (fig. 2, e.g. "ATM proc. unit 140") and a second pooling switch (fig. 2, e.g. "LIU [line interface unit] 110") connected to *the link layer framer* ("framer 111").

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method/device of Sutoh by adding the link layer and associated buffers of Sha to Sutoh in order to provide a simpler and yet effective system "with a very simple decision logic" (Sha, col. 3 lines 3-4) to overcome the complexity of prior arts using state machine which "is quite large" (Sha, col. 2 lines 62) that "can slow down performance and certainly increases the cost of maintenance" (Sha, col. 2 lines 65-67).

Sutoh in view of Sha, however, does not disclose, regarding claims 1, 13, 26, 27, 28 and 31, wherein the traffic in the second physical module *is not processed through any link layer framer*; and regarding claim 34, wherein each of the plurality of physical modules is configured *to not process traffic through a link layer framer*.

However, whether or not to pass/process *traffic through a link layer framer* is well known in the art to depend on process necessity, which has been a well established technique familiar to one skilled in the art. One example of such technique can be seen in Natarajan.

Natarajan discloses "a multirate transceiver wherein data can be received at a first data rate and transmitted at a second data rate" (Abstract lines 1-3), which system comprises, in view of figs. 2 through 9 especially figs. 2 and 4, "both the ingress path 205a and the egress path 205b" ([0032] lines 1-2) and the "ingress path 205a/205b" has "framer 228a/228b". Natarajan particularly discloses:

**Regarding claim 34**, wherein each of the plurality of physical modules is configured *to not process traffic through a link layer framer*.

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(refer to figs. 2/4 for ingress/egress and see "a bypass route is included for bypassing the mapper 225a/225b when mapping is not desired. In an alternate embodiment, both the framer 228a/228b and mapper 225a/225b can be bypassed", [0041/0046] lines 1-4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method/device of Sutoh by adding the framer bypassing feature of Natarajan to Sutoh in order to provide a more robust system that "would be advantageous to provide a more flexible scheme for accommodation of the varying user requirements" (Natarajan, [0008] lines 1-3).

### ***Allowable Subject Matter***

9. Claims 1-33 are allowed.

10. The following is an examiner's statement of reasons for allowance:

The various Independent claims among above cited claims, namely claims 1, 13, 26, 27, 28 and 31, contain a common limitation that appears to be allowable, in combinations with other limitations set forth in said claims. Said common limitation is (underlined below), using claim 1 language as an example:

*... the traffic in the second physical module is not processed through a link layer framer of the second physical module but is processed through the link layer framer of the first physical module.*

The Applied arts throughout the prosecution of instant Application, individually or in combination, appear to have failed to anticipate said feature or render it obvious.

Consequently, all Dependent claims depending from above cited Independent claims are also allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

11. Applicant's arguments filed on 9/8/2008 have been fully considered but they are not persuasive.

Applicant amended Independent claims 1, 13, 26, 27, 28 and 31 by adding the feature highlighted in section 10 above, which put said claims and their respective Dependent claims allowable, as indicated above.

Applicant states (Remarks page 8 second to last paragraph), after reciting above allowable feature, "Similar configurations are claimed in claims 13, 26, 27, 28, 31, and 34" (emphasis added). However, claim 34 in fact was not amended with said "similar configurations" but rather with an entirely different structure, and thus is rejected as discussed in section 8 above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW LAI whose telephone number is (571)272-

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9741. The examiner can normally be reached on M-F 7:30-5:00 EST, Off alternative Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on 571-272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew Lai/  
Examiner, Art Unit 2416

/Kwang B. Yao/

Supervisory Patent Examiner, Art Unit 2416